11-8-04

Response Under 37 C.F.R. §1.192 Appellant's Brief

oplication No. 10/056,680 aper Dated: November 5, 2005 Appropsy Docket No. CV01492K



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

T. Kosoglou et al.

Examiner: San-Ming R. Hui

Serial No.:

10/056,680

Group Art Unit: 1617

Filed: January 25, 2002

Atty. Docket No.: CV01492K

For: Combinations of Sterol

Absorption Inhibitor(s) with Blood:

Modifiers for Treating Vascular

Indications

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

ON APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192

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Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

TABLE OF CONTENTS

			Page					
TABLE OF CONTENTS								
REAL	PART'	Y IN INTEREST	1					
RELA	TED A	PPEALS AND INTERFERENCES	1					
STAT	US OF	THE CLAIMS	1					
STAT	US OF	AMENDMENTS	1					
SUMN	IARY (OF THE INVENTION	1					
ISSUE	Ξ:							
l.	35 U.S	Prima Facie Case of Obviousness Under S.C. § 103 Over EP 0720599 and WO 99/47123						
	in Viev	w of Frei Been Established?	2					
GROL	JPING	OF CLAIMS	3					
ARGU	IMENT		3					
1.	The Required Prima Facie Case of Obviousness Under 35 U.S.C. § 103 has Failed to be Established							
	A.	The Rejection	3					
	B.	The Prior Art	4					
	C.	Discussion	4					
APPE	NDIX -	Claims on Appeal	9					

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

1

REAL PARTY IN INTEREST

The real party in interest in this Appeal is assignee Schering Corporation, having a principal place of business 2000 Galloping Hill Road, Kenilworth, NJ 07033.

Ш

RELATED APPEALS AND INTERFERENCES

As the legal representative of Appellant, the undersigned attorney has no knowledge of any appeals or interferences directly related to this Appeal.

Ш

STATUS OF THE CLAIMS

This is an original patent application in which claims 1 and 3-48 are pending and claims 4-10, 12-17, 21-34, 38-41, 46 and 48 have been withdrawn from consideration by the Examiner. Claim 2 was canceled in the Amendment of May 10, 2004 ("Amendment").

Claims 1-3, 11, 18-20, 35-37, 42-45 and 47 (pending) were finally rejected under 35 U.S.C. § 103(a) in an Office Action mailed July 28, 2004 ("Final Office Action"). Fourteen (14) pending claims (1, 3, 11, 18-20, 35-37, 42-45 and 47) are at issue in this Appeal.

IV

STATUS OF AMENDMENTS

No claims were amended after final rejection. A copy of the claims involved in this Appeal is contained in the Appendix attached hereto.

V

SUMMARY OF THE INVENTION

Applicants have discovered compositions and combinations comprising:

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

(a) at least one sterol absorption inhibitor represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 Ar^{3}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}

isomers, prodrugs, or pharmaceutically acceptable salts or solvates thereof (see original claim 2 for moiety definitions); and

(b) at least one blood modifier for vascular conditions which is different from component (a) above

(original claim 2 and page 15, line 23 - page 17, line 4 of the specification).

In the Office Action of August 27, 2003, Applicants were required to elect a species of sterol absorption inhibitor, blood modifier, and third therapeutic agent. Applicants provisionally elected ezetimibe, which is represented by Formula (II) below:

Ezetimibe is the active ingredient in ZETIA® pharmaceutical formulation, which is commercially available from MSP (Merck Schering-Plough) Pharmaceuticals, Inc. <u>See</u> Response to Restriction Requirement and Election of Species of September 9, 2003 ("Response").

In the same Response, Applicants provisionally elected aspirin as the blood modifier and simvastatin (an HMG CoA reductase inhibitor) as the third therapeutic agent.

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

The claimed compositions, combinations and treatment methods can be useful for treating vascular conditions and/or lowering concentration of a sterol in plasma in a mammal (page 72, lines 13-18 of the specification).

VΙ

ISSUE

Has a <u>Prima Facie</u> Case of Obviousness Under 35 U.S.C. § 103 Over EP 0720599 ("Rosenblum et al.") and WO 99/47123 ("Ullah") in view of Frei (Proc Soc Exp Biol Med. 1999 Dec; 222(3): 196-204) been Established?

VII

GROUPING OF CLAIMS

All fourteen (14) of pending claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 in the present application have been treated together. Claims 35-37 (Group II) do not stand and fall together with claims 1, 3, 11, 18-20 and 47 (Group I) because they recite an additional component, namely an HMG CoA reductase inhibitor. Claims 42-45 (Group III) do not stand and fall together with the claims of Group I or Group II because they recite an additional component, an antioxidant or vitamin.

VIII

ARGUMENT

I. The Rejection

Claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 have been rejected under 35 U.S.C. § 103(a) over EP 0720599 ("Rosenblum et al.") and WO 99/47123 ("Ullah") in view of Frei (Proc Soc Exp Biol Med. 1999 Dec; 222(3): 196-204).

The reasons for rejection are set forth in the Final Office Action, summarized as follows:

Rosenblum et al. disclose that compositions including the compound of Formula II can be combined with HMG CoA reductase inhibitors such as

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

simvastatin to reduce cholesterol and risk of atherosclerosis (Final Office Action at page 3). Ullah teaches a composition comprising statins, such as simvastatin, in combination with aspirin, for cholesterol lowering and treating or reducing the risk of developing atherosclerosis (Final Office Action at page 3).

It is acknowledged that the primary references do not expressly teach the claimed composition comprising the compound of Formula II, aspirin and simvastatin together or that antioxidants be incorporated into such as composition (Final Office Action at page 3). Frei teaches that antioxidants such as vitamins C or E can be useful for inhibiting atherogenesis and normalizing vascular functions. (Final Office Action at page 4).

It is alleged that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the compound of Rosenblum et al. into Ullah, which are known to be useful to reduce cholesterol level and the risk of atherosclerosis individually, into a single composition useful for the very same purpose, citing *In re Kerkoven*, 205 U.S.P.Q. 1069 (Final Office Action at page 4). Further, one of ordinary skill in the art would have been motivated to include an antioxidant since vitamin C, an antioxidant, is known to inhibit the development of atherosclerosis (Final Office Action at page 4).

II. The Prior Art

Rosenblum et al. disclose the compound of Formula II (Page 29, Ex. 6). Rosenblum et al. disclose starch-based pharmaceutical compositions including compounds of Formula I of Rosenblum et al. (Ex. A and B Page 29). Rosenblum et al. teach that the active compounds therein can be combined with HMG CoA reductase inhibitors, such as simvastatin (Page 5, paragraph 0028). Rosenblum et al. also disclose that the active compounds are useful for reducing cholesterol and the risk of atherosclerosis (claims).

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

Ullah discloses the use of aspirin for reducing myocardial infarction and a statin (such as simvastatin) for lowering cholesterol and preventing or treating atherosclerosis at page 1, lines 14-18, in combination.

Frei discloses that antioxidants may inhibit atherogenesis and improve vascular function by two different mechanisms (Abstract). Lipid-soluble antioxidants present in LDL, such as vitamin C, can inhibit LDL oxidation (Abstract). Antioxidants present in the cells of the vascular wall decrease cellular production and release of reactive oxygen species (ROS), inhibit endothelial activation and improve the biologic activity of ENDO (Abstract).

II. The Required Prima Facie Case of Obviousness Under 35 U.S.C. § 103 Has Not Been Established

When making a rejection under 35 U.S.C. § 103, the Examiner has the burden of establishing a <u>prima facie</u> case of obviousness. <u>In re Fritch</u>, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The Examiner can satisfy this burden only by showing an objective teaching in the prior art, or knowledge generally available to one of ordinary skill in the art, which would lead an individual to combine the relevant teachings of the references [and/or the knowledge] in the manner suggested by the Examiner. <u>Id.</u>; <u>In re Fine</u>, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

The mere fact that the prior art could be modified does not make the modification obvious *unless the prior art suggests the desirability of the modification* (emphasis added). <u>In re Fritch</u>, 23 U.S.P.Q.2d at 1784; <u>In re Laskowski</u>, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989); <u>In re Gordon</u>, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

"The ultimate determination of patentability must be based on consideration of the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence." Manual of Patent Examining Procedure, (Rev. 1, Feb. 2003) § 716.01(d) and In re Oetiker, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992).

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

Claims 1, 3, 11, 18-20 and 47

Claims 1 and 47 recite a composition and therapeutic combination, respectively, comprising a sterol absorption inhibitor of Formula I shown above, isomers, prodrugs, or pharmaceutically acceptable salts or solvates thereof; and at least one blood modifier for vascular conditions which is different from the sterol absorption inhibitor.

Claim 3 depends from claim 1 and recites the compound of Formula II (ezetimibe) as the compound of Formula I.

Claim 11 depends from claim 1 and recites specific groups of blood modifiers. Claims 18-20 depend directly or indirectly from claim 1 and recite that the blood modifier is a platelet inhibitor, such as aspirin.

It is respectfully submitted that the combination of the references cited as rendering the claimed invention obvious is improper because there is no suggestion in the cited references to combine the claimed components of sterol absorption inhibitor (such as that of Formula (I) (e.g., ezetimibe)) and blood modifier such as aspirin.

Applicants wish to emphasize that claim 1 does not require the presence of a third component, such as a statin.

With respect to patentability of a composition or combination of a sterol absorption inhibitor and blood modifier such as aspirin (without the presence of a statin), Rosenblum does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin. Ullah does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin.

In Ullah, aspirin is disclosed as being useful for reducing myocardial infarction at page 1, lines 14-18, not for treating atherosclerosis. The statin in Ullah is disclosed as lowering cholesterol and treating atherosclerosis. <u>Id.</u>

In the final Office Action at pages 4 and 5, *In re Kerkoven* was cited as supporting the argument that combining the compositions of Rosenblum and Ullah, which are known to be useful to reduce cholesterol level and the risk of

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

atherosclerosis individually, into a single composition useful for the very same purpose would be considered obvious.

However, the invention of claims 1, 3, 11, 18-20 and 47 is for a sterol absorption inhibitor and blood modifier such as aspirin and does not require a statin. Ullah does *not* disclose aspirin as being useful for lowering cholesterol or treating atherosclerosis. Therefore *In re Kerkoven* does not apply since Ullah does not disclose aspirin as having the same purpose as a cholesterol absorption inhibitor or HMG CoA reductase inhibitor, namely to lower cholesterol or treat atherosclerosis.

Frei does not disclose sterol absorption inhibitors or blood modifiers such as aspirin. Even if the teachings of Frei were combined with those of Rosenblum et al. and Ullah as suggested in the Final Office Action, one skilled in the art would not be motivated to provide a composition having a sterol absorption inhibitor and blood modifier such as aspirin.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 1, 3, 11, 18-20 and 47 should be reconsidered and withdrawn.

Claims 35-37

Claims 35-37 depend from claim 1 and further recite at least one HMG CoA reductase inhibitor, such as simvastatin. Thus the composition would comprise sterol absorption inhibitor, blood modifier such as aspirin, and HMG CoA reductase inhibitor, such as simvastatin.

It is respectfully submitted that the combination of the references cited as rendering the claimed invention obvious is improper because there is no suggestion in the cited references to combine the claimed components of sterol absorption inhibitor (such as that of Formula (I) (e.g., ezetimibe)), blood modifier such as aspirin, and HMG CoA reductase inhibitor.

Rosenblum et al. and Ullah provide no motivation for a triple combination of sterol absorption inhibitor, blood modifier such as aspirin, and HMG CoA reductase inhibitor. Frei only discloses antioxidants as useful for

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Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

treating atherosclerosis and therefore is not relevant to the rejection of these claims.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 35-37 should be reconsidered and withdrawn.

Claims 42-45

Claims 42-45 depend from claim 1 and further recite at least one antioxidant or vitamin. Thus the composition would comprise sterol absorption inhibitor, blood modifier such as aspirin, and antioxidant or vitamin.

Applicants wish to emphasize that claim 1 does not require the presence of a third component, such as a statin.

With respect to patentability of a composition or combination of a sterol absorption inhibitor, blood modifier such as aspirin and antioxidant or vitamin (without the presence of a statin), Rosenblum does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin. Ullah does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin.

In Ullah, aspirin is disclosed as being useful for reducing myocardial infarction at page 1, lines 14-18, not for treating atherosclerosis. The statin in Ullah is disclosed as lowering cholesterol and treating atherosclerosis. Id.

In the final Office Action at pages 4 and 5, *In re Kerkoven* was cited as supporting the argument that combining the compositions of Rosenblum and Ullah, which are known to be useful to reduce cholesterol level and the risk of atherosclerosis individually, into a single composition useful for the very same purpose would be considered obvious.

However, the invention of claims 42-45 is for a sterol absorption inhibitor, blood modifier such as aspirin and antioxidant or vitamin. Ullah does not disclose aspirin as being useful for lowering cholesterol or treating atherosclerosis. Therefore *In re Kerkoven* does not apply since Ullah does

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

not disclose aspirin as having the same purpose as a cholesterol absorption inhibitor.

Frei does not disclose sterol absorption inhibitors or blood modifiers such as aspirin. Even if the teachings of Frei were combined with those of Rosenblum et al. and Ullah as suggested in the Final Office Action, one skilled in the art would not be motivated to provide a composition having a having a sterol absorption inhibitor, blood modifier such as aspirin and vitamin or antioxidant.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 42-45 should be reconsidered and withdrawn.

Accordingly, Applicants respectfully request that the § 103(a) rejection of claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 be reconsidered and withdrawn.

Respectfully submitted,

Date: November 5, 2004

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Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

APPENDIX - Claims on Appeal

- 1. A composition comprising:
- (a) at least one sterol absorption inhibitor or pharmaceutically acceptable salt or solvate thereof or prodrug of the at least one sterol absorption inhibitor or of the salt or solvate thereof

wherein the at least one sterol absorption inhibitor is represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 Ar^{3}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}

or isomers thereof, or pharmaceutically acceptable salts or solvates of the compounds of Formula (I) or of the isomers thereof, or prodrugs of the compounds of Formula (I) or of the isomers, salts or solvates thereof, wherein:

Ar¹ and Ar² are independently selected from the group consisting of aryl and R⁴-substituted aryl;

Ar³ is aryl or R⁵-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH₂-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R^2 are independently selected from the group consisting of - OR^6 .

-O(CO)R⁶, -O(CO)OR⁹ and -O(CO)NR⁶R⁷;

R¹ and R³ are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1:

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5

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Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5:

 R^4 is 1-5 substituents independently selected from the group consisting of lower alkyl, $-OR^6$, $-O(CO)R^6$, $-O(CO)OR^9$, $-O(CH_2)_{1-5}OR^6$, $-O(CO)NR^6R^7$, $-NR^6R^7$, $-NR^6(CO)R^7$, $-NR^6(CO)R^9$, $-NR^6(CO)NR^7R^8$, $-NR^6SO_2R^9$, $-COOR^6$, $-CONR^6R^7$, $-COR^6$, $-SO_2NR^6R^7$, $S(O)_{0-2}R^9$, $-O(CH_2)_{1-10}$ - $-COOR^6$, $-O(CH_2)_{1-10}CONR^6R^7$, $-(Iower alkylene)COOR^6$, $-CH=CH-COOR^6$, $-CF_3$, -CN, $-NO_2$ and halogen;

 $\ensuremath{\text{R}^{5}}$ is 1-5 substituents independently selected from the group consisting of

 $-\mathsf{OR}^6, \, -\mathsf{O(CO)R}^6, \, -\mathsf{O(CO)OR}^9, \, -\mathsf{O(CH_2)_{1.5}OR}^6, \, -\mathsf{O(CO)NR}^6R^7, \, -\mathsf{NR}^6R^7,$

 $-NR^6(CO)R^7$, $-NR^6(CO)OR^9$, $-NR^6(CO)NR^7R^8$, $-NR^6SO_2R^9$, $-COOR^6$, $-COOR^6R^7$,

-COR⁶, -SO₂NR⁶R⁷, S(O)₀₋₂R⁹, -O(CH₂)₁₋₁₀-COOR⁶, -O(CH₂)₁₋₁₀CONR⁶R⁷, -(lower alkylene)COOR⁶ and -CH=CH-COOR⁶;

 R^6 , R^7 and R^8 are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R⁹ is lower alkyl, aryl or aryl-substituted lower alkyl; and

- (b) at least one blood modifier for vascular conditions which is different from component (a) above.
- 3. The composition according to claim 1, wherein the sterol absorption inhibitor is represented by Formula (II) below:

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

or pharmaceutically acceptable salts or solvates thereof, or prodrugs of the compound of Formula (II) or of the salts or solvates thereof.

- 11. The composition according to claim 1, wherein the at least one blood modifier is selected from the group consisting of anti-coagulants, antithrombotic agents, fibrinogen receptor antagonists, platelet inhibitors, platelet aggregation inhibitors, hemorrheologic agents, lipoprotein associated coagulation inhibitor, Factor VIIa inhibitors, Factor Xa inhibitors and combinations thereof.
- 18. The composition according to claim 11, wherein the at least one blood modifier is a platelet inhibitor.
- 19. The composition according to claim 18, wherein the platelet inhibitor is selected from the group consisting of cilostazol, clopidogrel bisulfate, epoprostenol, epoprostenol sodium, ticlopidine hydrochloride, aspirin, ibuprofen, naproxen, sulindae, idomethacin, mefenamate, droxicam, diclofenac, sulfinpyrazone, piroxicam, dipyridamole and combinations thereof.
- 20. The composition according to claim 19, wherein the platelet inhibitor is aspirin.

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Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

- 35. The composition according to claim 1, further comprising at least one cholesterol biosynthesis inhibitor.
- 36. The composition according to claim 35, wherein the at least one cholesterol biosynthesis inhibitor comprises at least one HMG CoA reductase inhibitor.
- 37. The composition according to claim 36, wherein the at least one HMG CoA reductase inhibitor is simvastatin.
- 42. The composition according to claim 1, further comprising at least one antioxidant or vitamin.
- 43. The composition according to claim 1, wherein the at least one blood modifier is administered to a mammal in an amount ranging from about 1 to about 1000 milligrams of blood modifier per day.
- 44. The composition according to claim 1, wherein the at least one sterol absorption inhibitor is administered to a mammal in an amount ranging from about 0.1 to about 1000 milligrams of sterol absorption inhibitor per day.
- 45. A pharmaceutical composition for the treatment of vascular conditions, diabetes, obesity or lowering a concentration of a sterol in plasma of a mammal, comprising a therapeutically effective amount of the composition of claim 1 and a pharmaceutically acceptable carrier.
 - 47. A therapeutic combination comprising:
 - (a) a first amount of at least one sterol absorption inhibitor or pharmaceutically acceptable salt or solvate thereof or prodrug of the at least one sterol absorption inhibitor or of the salt or solvate thereof; and

Application No. 10/056,680 Paper Dated: November 5, 2005 Attorney Docket No. CV01492K

(b) a second amount of at least one blood modifier different from the sterol absorption inhibitor,

wherein the first amount and the second amount together comprise a therapeutically effective amount for the treatment of vascular conditions, diabetes, obesity or lowering a concentration of a sterol in plasma of a mammal.

for FY 2005						Filing Date				10/030,080				
										January 25, 2002				
NOV 0 5 2004 H							First Named Inventor				T. Kosoglou et al.			
							Examiner Name			San-Ming R. Hui				
Applicative laims small entity status. See 37 CFR 1.27							Art Unit			1617				
TOTAL AMOUNT OF PAYMENT (\$)340.00							Attorney Docket No.				CV01492K			
											CALCULATION (continued)			
METHOD OF PAYMENT (check all that apply)										CALCUL	ATION (con	tinued)		
X Check Credit Card Money Order Other None							3. ADDITIONAL FEES							
Deposit Account:							e Entity	Small	Entity	_				
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		FEE	E CALCI	JLATION		1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action				
1. BASIC F	- 1					1251	110	2251	55		for reply within f	ł		
Large En	ntity Fee	Small Fee	Entity Fee			1252	420	2252	210		for reply within s	l		
Code (\$		Code	(\$)	Fee Description	Fee Paid	1253	950	2253	475	Extension	for reply within t	hird month		
		2001	385	Utility filing fee		1254	1,480	2254	740	Extension	for reply within for	ourth month		
		2002	170	Design filing fee		1255	2,010	2255	1,005	Extension	for reply within f	ifth month		
	- 1	2003	265	Plant filing fee		1401	340	2401	165	Notice of	Appeal			
1004 7	70	2004	385	Reissue filing fee		1402	340	2402	165	Filing a br	rief in support of a	in appeal	340.00	
1005 16	60	2005	80	Provisional filing fee		1403	290	2403	145	Request for oral hearing				
	S	UBTOTA	AL (1) (\$)		1451	1,510	1451	1,510	Petition to institute a public use proceeding					
						1452	110	2452	55	Petition to revive - unavoidable				
2. EXTRA	M FEE	S FOR U	TILITY AND REIS	SSUE	1453	1,330	2453	665	Petition to revive - unintentional					
		Ex	tra Claim	Fee from s below	Fee Paid	1501	1,330	2501	665	Utility iss	ue fee (or reissue)			
Total Claims		-20** =		x = [1502	480	2502	240	Design iss	sue fee			
Independent Claims		-3** =		x = [1503	640	2503	320	Plant issue	e fee			
Multiple Depend	ient .			=		1460	130	1460	130	Petitions to the Commissioner				
Large En	ntity	Small	Entity			1807	50	1807	50	Processing fee under 37 CFR 1.17(q)				
Fee Fo	ee S)	Fee Code	Fee (\$)	Fee Description		1806	180	1806	180	Submissio	on of Information	Disclosure Stmt	1	
1202 18		2202	9	Claims in excess of 20		8021	40	8021	40		each patent assig			
1201 86	6	2201	43	Independent claims in e	excess of 3	1809	770	2809	385	Filing a su	times number of p thmission after fin	· ′ •		
1203 29	90	2203	145	Multiple dependent claim, if not paid		1810	770	2810	385	(37 CFR 1.129(a)) For each additional invention to be examined (37 CFR 1.129(b))				
1204 86	6	2204	43	**Reissue independent claims over original patent		1801	770	2801	385	Request for Continued Examination (RCE)				
1205 18 2205 9 **Reissue claims in excess of 20 and over original patent					1802	802 900 1802 900 Request for expedited examination of a design application								
				AL (2) (\$)		Other f	Other fee (specify)							
**or nu	umber p	reviously	y paid, if gr	eater; For Reissues, see	above	*Reduc	teduced by Basic Filing Fee Paid SUB					BTOTAL (3) (\$)340.00		
SUBMITTE	ED BY										(Complete	e (if applicable))		
Name (Print/Type) Ann Marie Cannoni						Registration No. (Attorney/Agent) 35,972 Telephone 412-471-8815								
Signature					0	•	Date November 5, 2					004		
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